**Regional Remediation Team**

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# Monthly Progress Report No. 70

Submitted to: Mr. Frank Battaglia, Project Manager
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Rec'd
5-10-96

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Pursuant to: RCRA I-88-1088

Facility Site: Cranston, RI

Period Covered: April 1996 (April 30, 1996 - May 3, 1996) through fifth Friday of the month.

Date Submitted: May 10, 1996

## 1.0 SUMMARY

This is the seventh monthly progress report. There were three areas of significant activity this month:

- **Stabilization IRM** - The groundwater extraction wells 110 and 120 and the pretreatment system continued to operate during April with no problems. The Soil Vapor Extraction (SVE) System still has not become operational because of software problems. This item of concern will be addressed in 3.0 Jeopardy Tasks.

- **Sediment Removal IRM** - The revision of this report is almost complete and should be submitted to EPA by mid-May.

- **Pawtuext River CMS Report** - Ciba and its consultants started work on the CMS report in mid-April. We anticipate preparation of a **"focused"** report similar to the On-Site CMS, where only 3-4 alternatives will be considered for evaluation/selection. The CMS will be addressed further below.

## 2.0 TASKS AND ACTIVITIES COMPLETED

Sampling and other task activities are reported here.

### 2.1 Sampling Activities Completed

On April 29 to May 1, Ciba re-sampled the 17 wells in the Production Area (see Attachment 1, Figure 1) to verify the previous volatile organic results and obtain further information about soluble metals data, especially monitoring well 0136 (see 5.0 Data obtained). The wells were first sampled on March 5th and 6th.

### 2.2. Media Protection Standards (MPS)

As required for the Pawtuxet River CMS Report, Ciba submitted preliminary MPS to the EPA on May 3rd for six (6) volatile organics found in the groundwater at the former Production Area. These MPS are based upon the Toxicity Reference Values (TRVs) for benthic invertebrates established in the Pawtuxet River RFI Report, Volume 3: Aquatic Baseline Ecological Risk Assessment, March 31, 1996. The point of compliance would be the three river sediment wells SW-110,120, and 130. The preliminary MPS are: 1,2 Dichlorobenzee 94 PPB, Chlorobenzene 1,700 PPB, Ethylbenzene 12,000 PPB, O-Chlorotoluene 1,500 PPB, Toluene 5,000 PPB, and Total Xylenes 38 PPB. Currently, these MPS/TRVs are being met at the compliance point(s).

## 3.0 JEOPARDY TASKS

As noted in 1.0 Summary, the SVE system has still not become fully, and continuously, operational because of a software programming problem. However, this is not as great a concern as before because the toluene level in the groundwater has decreased greatly and is almost entirely captured by the two extraction wells (see 5.0 Data Obtained). As a result, operation of the SVE may still be necessary to reduce soil volatile levels near SWMU11 but not those in groundwater.

## 4.0 OTHER TASKS UNDERWAY

Currently, the Pawtuxet River CMS Report is the most critical task underway. It is scheduled for submittal to the EPA by June 30, 1996. Ciba sent a draft outline for the report to EPA on May 3rd. Since the report will be a **"focused"** document similar to the On-Site CMS, we would appreciate any comments as soon as possible.

## 5.0 DATA OBTAINED

### 5.1 Groundwater Sampling

On March 5 and 6, 1996, Ciba sampled 17 wells and peizometers in the Production Area, as shown in Figure 1 Attachment 1. All 17 samples were analyzed for volatile orgaincs (VOCs) and total metals. A subset of nine (9) samples taken from the soil removal IRM areas (MW002s, 020s, and 021s), along the shoreline (MW-001s, 110, and 120), and in the river sediments (SW-110, 120, 130) were tested for PCBs and

pesticides, including Methyl Parathion. Five (5) samples collected along the shoreline (MW-001s, 110 and 120) and in the river sediments (SW-110 and 130), from the subset of nine (9) samples, were also analyzed for semivolatiles, base, neutrals, and acid extractable organics, including 4-Chloroaniline. The results are summarized in Attachment 1 by group (volatiles, semi's, etc.) and compound.

PCBs and pesticides were not detected. The levels of semivolatiles, which included some PAHs, were very low. As expected, most of the contaminants identified were volatiles, metals and cyanide. Six (6) volatiles occurred at elevated concentrations, including: 1,2-Dichlorobenzene (Figure 2), Chlorobenzene (Figure 3), Ethylbenzene (Figure 4), O-chlorotoluene (Figure 5), Toluene (Figure 6) and Total Xylenes (Figure 7). However, there has been a significant decrease in these volatiles, sometimes several fold, since the last groundwater samples were taken during the RFI Phase I and II assessments in 1991/1992. This may be attributable to a combination of degradation and natural attenuation.

Except for 1,2-Trans-Dichloroethylene in Well MW-002s, the other volatiles (Benzene, Chloroform, Tetrachloroethylene, and Trichlorethylene) were estimated **"J"** values or found at very low levels. They do not appear to be significant contaminants.

The concentration of metals in one well (MW-13S) was extremely high and is inconsistent with the much lower previous RFI data. Generally, cyanide and metals have not been a concern in the Production Area groundwater. Ciba will investigate further.

### 5.2 Groundwater Stabilization

Woodward Clyde Consultants (WCC) have been preparing a letter report on the contaminant mass intercepted by the groundwater extraction wells 110 and 120. It was revised to include the recent groundwater sampling results of March 5 and 6 for volatiles only. WCC estimates that 96% of the mass of the six (6) elevated volatile compounds identified above in 5.1 are being captured. Ciba notes that this would satisfy the requirements of the 1992 Consent Order Modification to significantly reduce or prevent the volatiles in the groundwater from reaching the Pawtuxet River. The current groundwater extraction system (wells 10 and 120) is already meeting the preliminary MPS/TRVs established for the compliance points (wells). As such, there is no need to reverse the entire gradient which was primarily a design goal of the Stabilization IRM.

## 6.0 PROBLEM AREAS

There are no problems, which are not being resolved, in a timely manner.

## 7.0 SCHEDULE OF TASKS (next two months)

The following tasks will be started or completed in April and May.

- Finish the Sediment Removal IRM Report (May)
- Startup the SVE continuously (May)

- Continue the River CMS Report (May)

## 8.0 CHANGES IN WORK PLAN

No changes to the Work Plan are proposed at this time; however, we have requested that the Toxicity Indicator Evaluations (TIES) in the Phase II River Study be eliminated based upon the results of the Aquatic Baseline Ecological Risk Assessment, submitted on March 29..

## 9.0 OTHER COMMENTS

Since the On-Site RFI and CMS were submitted in July and Sept. 1995, respectively, we are anticipating comments from the EPA and RIDEM on these documents.

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Appendix B

ATTACHMENT 1

CIBA-GEIGY CORPORATION
CRANSTON, RI
FORMER PRODUCTION AREA - GENERAL MONITORING

CONSTITUENTS DETECTED FOR MARCH 5/6 1996 GROUNDWATER SAMPLING EVENT
(EXCLUDES NONDETECTS)

| WELL | DATE SAMPLED | | UNITS UG/L | BI | VALUE | METHOD |
|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | |
| MW-002S | 5-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | | 340 | 624 |
| MW-004S | 6-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | | 89 | 624 |
| SW-110 | 6-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | | 54 | 624 |
| MW-120 | 5-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | J | 18 | 624 |
| MW-002S | 5-Mar-96 | 1,2-TRANS-DICHLOROETHYLEN | UG/L | | 61 | 624 |
| MW-002S | 5-Mar-96 | BENZENE | UG/L | J | 42 | 624 |
| MW-110 | 6-Mar-96 | BENZENE | UG/L | J | 13 | 624 |
| MW-001S | 6-Mar-96 | BENZENE | UG/L | J | 7.3 | 624 |
| SW-120 | 5-Mar-96 | BENZENE | UG/L | J | 1.7 | 624 |
| MW-004S | 6-Mar-96 | BENZENE | UG/L | J | 1.4 | 624 |
| MW-002S | 5-Mar-96 | CHLOROBENZENE | UG/L | | 3200 | 624 |
| MW-001S | 6-Mar-96 | CHLOROBENZENE | UG/L | | 2000 | 624 |
| SW-110 | 6-Mar-96 | CHLOROBENZENE | UG/L | | 1600 | 624 |
| MW-110 | 6-Mar-96 | CHLOROBENZENE | UG/L | | 900 | 624 |
| MW-120 | 5-Mar-96 | CHLOROBENZENE | UG/L | | 460 | 624 |
| P-036S | 6-Mar-96 | CHLOROBENZENE | UG/L | | 440 | 624 |
| MW-004S | 6-Mar-96 | CHLOROBENZENE | UG/L | | 210 | 624 |
| MW-022S | 5-Mar-96 | CHLOROBENZENE | UG/L | | 200 | 624 |
| SW-120 | 5-Mar-96 | CHLOROBENZENE | UG/L | | 63 | 624 |
| MW-013S | 6-Mar-96 | CHLOROBENZENE | UG/L | | 7.6 | 624 |
| MW-003S | 6-Mar-96 | CHLOROBENZENE | UG/L | | 5.7 | 624 |
| MW-012S | 5-Mar-96 | CHLOROBENZENE | UG/L | J | 2.4 | 624 |
| P-038S | 6-Mar-96 | CHLOROBENZENE | UG/L | J | 2.4 | 624 |
| MW-010S | 5-Mar-96 | CHLOROFORM | UG/L | J | 2.2 | 624 |
| MW-004S | 6-Mar-96 | ETHYLBENZENE | UG/L | | 110 | 624 |
| MW-012S | 5-Mar-96 | ETHYLBENZENE | UG/L | | 77 | 624 |
| MW-001S | 6-Mar-96 | ETHYLBENZENE | UG/L | | 28 | 624 |
| MW-002S | 5-Mar-96 | ETHYLBENZENE | UG/L | J | 27 | 624 |
| SW-110 | 6-Mar-96 | ETHYLBENZENE | UG/L | J | 19 | 624 |
| MW-013S | 6-Mar-96 | ETHYLBENZENE | UG/L | | 5.6 | 624 |
| MW-004S | 6-Mar-96 | O-CHLOROTOLUENE | UG/L | | 1700 | 624 |
| MW-021S | 6-Mar-96 | O-CHLOROTOLUENE | UG/L | | 480 | 624 |
| MW-110 | 6-Mar-96 | O-CHLOROTOLUENE | UG/L | | 75 | 624 |
| SW-110 | 6-Mar-96 | O-CHLOROTOLUENE | UG/L | | 55 | 624 |
| MW-003S | 6-Mar-96 | O-CHLOROTOLUENE | UG/L | | 13 | 624 |
| MW-022S | 5-Mar-96 | O-CHLOROTOLUENE | UG/L | | 12 | 624 |
| SW-120 | 6-Mar-96 | O-CHLOROTOLUENE | UG/L | | 6.5 | 624 |
| MW-010S | 5-Mar-96 | TETRACHLOROETHYLENE | UG/L | | 6.3 | 624 |
| MW-004S | 6-Mar-96 | TETRACHLOROETHYLENE | UG/L | | 3.3 | 624 |
| MW-004S | 6-Mar-96 | TOLUENE | UG/L | | 2100 | 624 |
| SW-110 | 6-Mar-96 | TOLUENE | UG/L | | 460 | 624 |
| MW-002S | 5-Mar-96 | TOLUENE | UG/L | | 200 | 624 |
| MW-001S | 6-Mar-96 | TOLUENE | UG/L | | 16 | 624 |

Appendix B

CIBA-GEIGY CORPORATION
CRANSTON, RI
FORMER PRODUCTION AREA - GENERAL MONITORING

CONSTITUENTS DETECTED FOR MARCH 5/6 1996 GROUNDWATER SAMPLING EVENT
(EXCLUDES NONDETECTS)

| WELL | DATE SAMPLED | | UNITS UG/L | BL | VALUE | METHOD |
|---|---|---|---|---|---|---|
| MW-021S | 6-Mar-96 | TOLUENE | UG/L | J | 12 | 624 |
| MW-003S | 6-Mar-96 | TOLUENE | UG/L | | 11 | 624 |
| P-038S | 6-Mar-96 | TOLUENE | UG/L | J | 1.3 | 624 |
| MW-010S | 5-Mar-96 | TRICHLOROETHYLENE | UG/L | J | 1.4 | 624 |
| MW-004S | 6-Mar-96 | XYLENES,TOTAL | UG/L | | 300 | 624 |
| MW-012S | 5-Mar-96 | XYLENES,TOTAL | UG/L | | 75 | 624 |
| MW-001S | 6-Mar-96 | XYLENES,TOTAL | UG/L | | 18 | 624 |
| **SEMIVOLATILE ORGANIC COMPOUNDS** | | | | | | |
| SW-110 | 6-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | | 38 | 625 |
| MW-120 | 5-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | | 13 | 625 |
| MW-110 | 6-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | J | 1.2 | 625 |
| MW-001S | 6-Mar-96 | 1,2-DICHLOROBENZENE | UG/L | J | 1.1 | 625 |
| MW-120 | 5-Mar-96 | 2,4-DIMETHYLPHENOL | UG/L | J | 1.7 | 625 |
| MW-001S | 6-Mar-96 | 2,4-DIMETHYLPHENOL | UG/L | J | 1.1 | 625 |
| MW-001S | 6-Mar-96 | 2-CHLOROPHENOL | UG/L | | 25 | 625 |
| SW-110 | 6-Mar-96 | 2-CHLOROPHENOL | UG/L | | 5.4 | 625 |
| MW-110 | 6-Mar-96 | 2-CHLOROPHENOL | UG/L | | 3.5 | 625 |
| MW-120 | 5-Mar-96 | 2-CHLOROPHENOL | UG/L | J | 1.2 | 625 |
| MW-110 | 6-Mar-96 | ACENAPHTHENE | UG/L | J | 1 | 625 |
| MW-120 | 5-Mar-96 | ACENAPHTHENE | UG/L | J | 1 | 625 |
| SW-110 | 6-Mar-96 | ANILINE | UG/L | | 21 | 625 |
| MW-110 | 6-Mar-96 | BENZO(A)ANTHRACENE | UG/L | J | 1.4 | 625 |
| MW-110 | 6-Mar-96 | BENZO(A)PYRENE | UG/L | J | 1.3 | 625 |
| MW-110 | 6-Mar-96 | BENZO(K)FLUORANTHENE | UG/L | J | 1.3 | 625 |
| MW-110 | 6-Mar-96 | BIS(2-ETHYLHEXYL)PHTHALAT | UG/L | J | 1.6 | 625 |
| MW-110 | 6-Mar-96 | CHRYSENE | UG/L | J | 1.4 | 625 |
| MW-110 | 6-Mar-96 | FLUORANTHENE | UG/L | | 3.9 | 625 |
| MW-110 | 6-Mar-96 | FLUORENE | UG/L | | 1.8 | 625 |
| MW-001S | 6-Mar-96 | NAPHTHALENE | UG/L | | 23 | 625 |
| MW-120 | 5-Mar-96 | NAPHTHALENE | UG/L | | 18 | 625 |
| MW-110 | 6-Mar-96 | NAPHTHALENE | UG/L | | 5 | 625 |
| SW-110 | 6-Mar-96 | NAPHTHALENE | UG/L | | 36 | 625 |
| MW-001S | 6-Mar-96 | NITROBENZENE | UG/L | | 4.1 | 625 |
| MW-110 | 6-Mar-96 | PHENANTHRENE | UG/L | | 2.1 | 625 |
| MW-001S | 6-Mar-96 | PHENOL | UG/L | | 15 | 625 |
| MW-110 | 6-Mar-96 | PHENOL | UG/L | | 8.6 | 625 |
| MW-120 | 5-Mar-96 | PHENOL | UG/L | | 2.8 | 625 |
| MW-110 | 6-Mar-96 | PYRENE | UG/L | | 3.2 | 625 |
| **TOTAL METALS** | | | | | | |
| MW-013S | 6-Mar-96 | ARSENIC,TOTAL | UG/L | | 3900 | 200.7 |
| P-038S | 6-Mar-96 | ARSENIC,TOTAL | UG/L | | 61 | 200.7 |
| MW-003S | 6-Mar-96 | ARSENIC,TOTAL | UG/L | | 58 | 200.7 |

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CONSTITUENTS DETECTED FOR MARCH 5/6 1996 GROUNDWATER SAMPLING EVENT
(EXCLUDES NONDETECTS)

| WELL | DATE SAMPLED | | UNITS | BL | VALUE | METHOD |
|---|---|---|---|---|---|---|
| MW-021S | 6-Mar-96 | ARSENIC,TOTAL | UG/L | | 56 | 200.7 |
| SW-120 | 5-Mar-96 | ARSENIC,TOTAL | UG/L | | 43 | 200.7 |
| MW-002S | 5-Mar-96 | ARSENIC,TOTAL | UG/L | | 27 | 200.7 |
| SW-110 | 6-Mar-96 | ARSENIC,TOTAL | UG/L | | 23 | 200.7 |
| SW-120 | 5-Mar-96 | BERYLLIUM,TOTAL | UG/L | | 9.6 | 200.7 |
| MW-110 | 6-Mar-96 | BERYLLIUM,TOTAL | UG/L | | 1.8 | 200.7 |
| MW-001S | 6-Mar-96 | BERYLLIUM,TOTAL | UG/L | | 0.55 | 200.7 |
| SW-130 | 6-Mar-96 | BERYLLIUM,TOTAL | UG/L | | 0.54 | 200.7 |
| MW-120 | 5-Mar-96 | BERYLLIUM,TOTAL | UG/L | | 0.48 | 200.7 |
| SW-110 | 6-Mar-96 | BERYLLIUM,TOTAL | UG/L | | 0.38 | 200.7 |
| MW-013S | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 1200 | 200.7 |
| SW-120 | 5-Mar-96 | CADMIUM,TOTAL | UG/L | | 36 | 200.7 |
| MW-001S | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 9.7 | 200.7 |
| MW-110 | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 9.7 | 200.7 |
| P-038S | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 8.3 | 200.7 |
| P-036S | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 7.1 | 200.7 |
| SW-110 | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 6.7 | 200.7 |
| SW-130 | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 5.1 | 200.7 |
| MW-003S | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 5 | 200.7 |
| MW-021S | 6-Mar-96 | CADMIUM,TOTAL | UG/L | | 4.6 | 200.7 |
| MW-010S | 5-Mar-96 | CHROMIUM,TOTAL | UG/L | | 910 | 200.7 |
| MW-020S | 5-Mar-96 | CHROMIUM,TOTAL | UG/L | | 700 | 200.7 |
| MW-013S | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 480 | 200.7 |
| P-036S | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 270 | 200.7 |
| SW-120 | 5-Mar-96 | CHROMIUM,TOTAL | UG/L | | 140 | 200.7 |
| MW-110 | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 120 | 200.7 |
| P-038S | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 98 | 200.7 |
| MW-022S | 5-Mar-96 | CHROMIUM,TOTAL | UG/L | | 50 | 200.7 |
| SW-130 | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 25 | 200.7 |
| MW-021S | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 21 | 200.7 |
| MW-120 | 5-Mar-96 | CHROMIUM,TOTAL | UG/L | | 21 | 200.7 |
| SW-110 | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 20 | 200.7 |
| MW-001S | 6-Mar-96 | CHROMIUM,TOTAL | UG/L | | 17 | 200.7 |
| SW-120 | 5-Mar-96 | COBALT,TOTAL | UG/L | | 120 | 200.7 |
| MW-110 | 6-Mar-96 | COBALT,TOTAL | UG/L | | 13 | 200.7 |
| SW-110 | 6-Mar-96 | COBALT,TOTAL | UG/L | | 13 | 200.7 |
| SW-130 | 6-Mar-96 | COBALT,TOTAL | UG/L | | 9.6 | 200.7 |
| MW-001S | 6-Mar-96 | COBALT,TOTAL | UG/L | | 9.1 | 200.7 |
| MW-120 | 5-Mar-96 | COBALT,TOTAL | UG/L | | 8.7 | 200.7 |
| MW-013S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 840 | 200.7 |
| MW-002S | 5-Mar-96 | COPPER,TOTAL | UG/L | | 150 | 200.7 |
| SW-120 | 5-Mar-96 | COPPER,TOTAL | UG/L | | 150 | 200.7 |
| P-036S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 130 | 200.7 |
| P-038S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 130 | 200.7 |

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FORMER PRODUCTION AREA - GENERAL MONITORING

CONSTITUENTS DETECTED FOR MARCH 5/6 1996 GROUNDWATER SAMPLING EVENT
(EXCLUDES NONDETECTS)

| WELL | DATE SAMPLED | | UNITS UG/L | BD | VALUE | METHOD |
|---|---|---|---|---|---|---|
| MW-110 | 6-Mar-96 | COPPER,TOTAL | UG/L | | 100 | 200.7 |
| SW-130 | 6-Mar-96 | COPPER,TOTAL | UG/L | | 32 | 200.7 |
| MW-021S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 24 | 200.7 |
| SW-110 | 6-Mar-96 | COPPER,TOTAL | UG/L | | 18 | 200.7 |
| MW-020S | 5-Mar-96 | COPPER,TOTAL | UG/L | | 15 | 200.7 |
| MW-001S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 14 | 200.7 |
| MW-022S | 5-Mar-96 | COPPER,TOTAL | UG/L | | 12 | 200.7 |
| MW-120 | 5-Mar-96 | COPPER,TOTAL | UG/L | | 12 | 200.7 |
| MW-004S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 8.8 | 200.7 |
| MW-003S | 6-Mar-96 | COPPER,TOTAL | UG/L | | 7.7 | 200.7 |
| MW-010S | 5-Mar-96 | COPPER,TOTAL | UG/L | | 7.3 | 200.7 |
| MW-012S | 5-Mar-96 | COPPER,TOTAL | UG/L | | 4.1 | 200.7 |
| MW-013S | 6-Mar-96 | LEAD,TOTAL | UG/L | | 980 | 200.7 |
| P-036S | 6-Mar-96 | LEAD,TOTAL | UG/L | | 240 | 200.7 |
| P-038S | 6-Mar-96 | LEAD,TOTAL | UG/L | | 230 | 200.7 |
| MW-110 | 6-Mar-96 | LEAD,TOTAL | UG/L | | 170 | 200.7 |
| SW-120 | 5-Mar-96 | LEAD,TOTAL | UG/L | | 85 | 200.7 |
| MW-002S | 5-Mar-96 | LEAD,TOTAL | UG/L | | 77 | 200.7 |
| MW-120 | 5-Mar-96 | LEAD,TOTAL | UG/L | | 53 | 200.7 |
| MW-021S | 6-Mar-96 | LEAD,TOTAL | UG/L | | 28 | 200.7 |
| MW-013S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 590 | 200.7 |
| SW-120 | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 200 | 200.7 |
| MW-010S | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 76 | 200.7 |
| MW-004S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 52 | 200.7 |
| SW-130 | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 47 | 200.7 |
| MW-110 | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 46 | 200.7 |
| MW-020S | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 41 | 200.7 |
| MW-021S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 41 | 200.7 |
| P-038S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 41 | 200.7 |
| SW-110 | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 34 | 200.7 |
| MW-001S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 32 | 200.7 |
| MW-002S | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 28 | 200.7 |
| P-036S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 28 | 200.7 |
| MW-022S | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 27 | 200.7 |
| MW-003S | 6-Mar-96 | NICKEL,TOTAL | UG/L | | 24 | 200.7 |
| MW-120 | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 21 | 200.7 |
| MW-012S | 5-Mar-96 | NICKEL,TOTAL | UG/L | | 19 | 200.7 |
| MW-013S | 6-Mar-96 | SILVER,TOTAL | UG/L | | 37 | 200.7 |
| MW-013S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 4800 | 200.7 |
| MW-002S | 5-Mar-96 | ZINC,TOTAL | UG/L | | 1500 | 200.7 |
| MW-110 | 6-Mar-96 | ZINC,TOTAL | UG/L | | 670 | 200.7 |
| SW-120 | 5-Mar-96 | ZINC,TOTAL | UG/L | | 550 | 200.7 |
| P-036S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 490 | 200.7 |
| P-038S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 200 | 200.7 |

Appendix B

CIBA-GEIGY CORPORATION
CRANSTON, RI
FORMER PRODUCTION AREA - GENERAL MONITORING

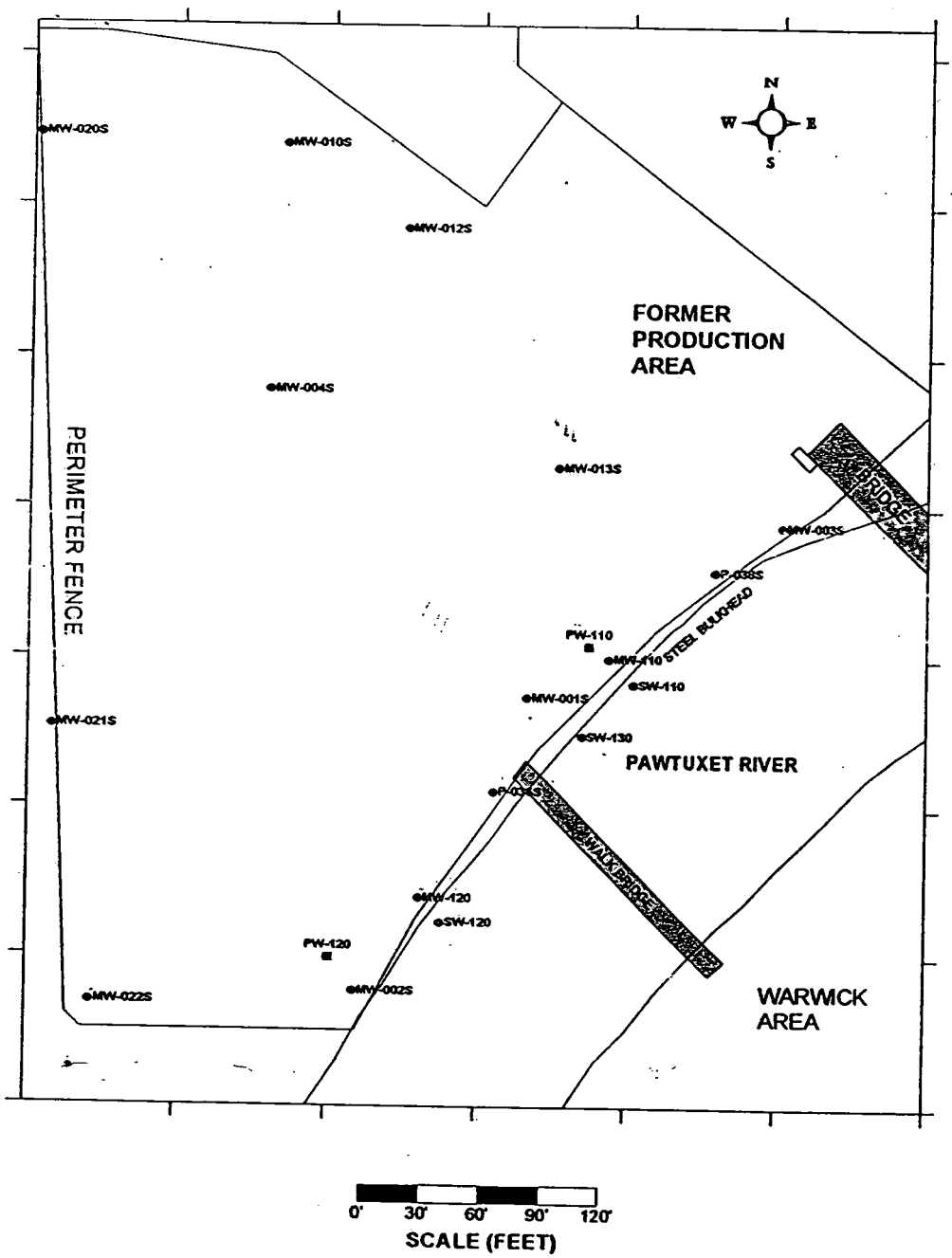
CONSTITUENTS DETECTED FOR MARCH 5/6 1996 GROUNDWATER SAMPLING EVENT
(EXCLUDES NONDETECTS)

| WELL | DATE SAMPLED | | UNITS UG/L | BL | VALUE | METHOD |
|---|---|---|---|---|---|---|
| SW-130 | 6-Mar-96 | ZINC,TOTAL | UG/L | | 100 | 200.7 |
| MW-120 | 5-Mar-96 | ZINC,TOTAL | UG/L | | 95 | 200.7 |
| MW-021S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 88 | 200.7 |
| MW-004S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 67 | 200.7 |
| MW-020S | 5-Mar-96 | ZINC,TOTAL | UG/L | | 60 | 200.7 |
| SW-110 | 6-Mar-96 | ZINC,TOTAL | UG/L | | 54 | 200.7 |
| MW-001S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 53 | 200.7 |
| MW-022S | 5-Mar-96 | ZINC,TOTAL | UG/L | | 18 | 200.7 |
| MW-010S | 5-Mar-96 | ZINC,TOTAL | UG/L | | 13 | 200.7 |
| MW-003S | 6-Mar-96 | ZINC,TOTAL | UG/L | | 12 | 200.7 |
| MW-012S | 5-Mar-96 | ZINC,TOTAL | UG/L | | 6.1 | 200.7 |
| **TOTAL CYANIDE** | | | | | | |
| MW-013S | 6-Mar-96 | CYANIDE | MG/L | | 0.59 | 335.2 |
| MW-120 | 5-Mar-96 | CYANIDE | MG/L | | 0.42 | 335.2 |
| P-036S | 6-Mar-96 | CYANIDE | MG/L | | 0.36 | 335.2 |
| MW-110 | 6-Mar-96 | CYANIDE | MG/L | | 0.093 | 335.2 |
| MW-002S | 5-Mar-96 | CYANIDE | MG/L | | 0.053 | 335.2 |
| MW-001S | 6-Mar-96 | CYANIDE | MG/L | | 0.034 | 335.2 |
| SW-110 | 6-Mar-96 | CYANIDE | MG/L | | 0.032 | 335.2 |
| P-038S | 6-Mar-96 | CYANIDE | MG/L | | 0.02 | 335.2 |
| MW-012S | 5-Mar-96 | CYANIDE | MG/L | | 0.018 | 335.2 |
| MW-022S | 5-Mar-96 | CYANIDE | MG/L | | 0.014 | 335.2 |
| MW-004S | 6-Mar-96 | CYANIDE | MG/L | | 0.012 | 335.2 |
| **PESTICIDE/PCB** | | | | | | |
| SW-110 | 6-Mar-96 | DELTA-BHC | UG/L | | 0.14 | 608 |

Note: "J" = Estimated value below the detection limit.

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**PRODUCTION AREA**

**Well Monitoring Locations**
**For**
**March 5&6, 1996**



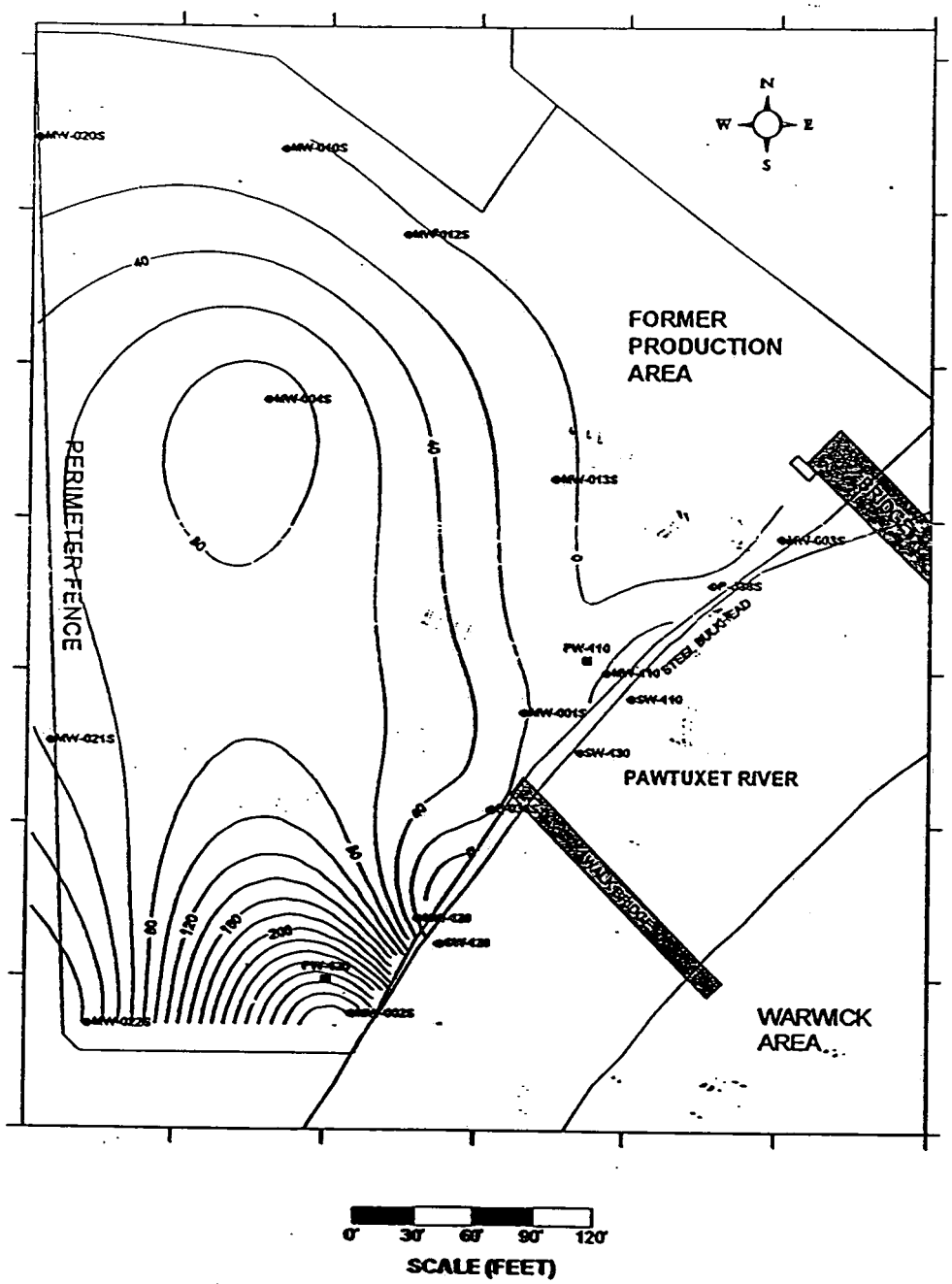

**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 1

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**March 5&6, 1996 Sampling**

**1,2 DICHLOROBENZENE (ppb)**



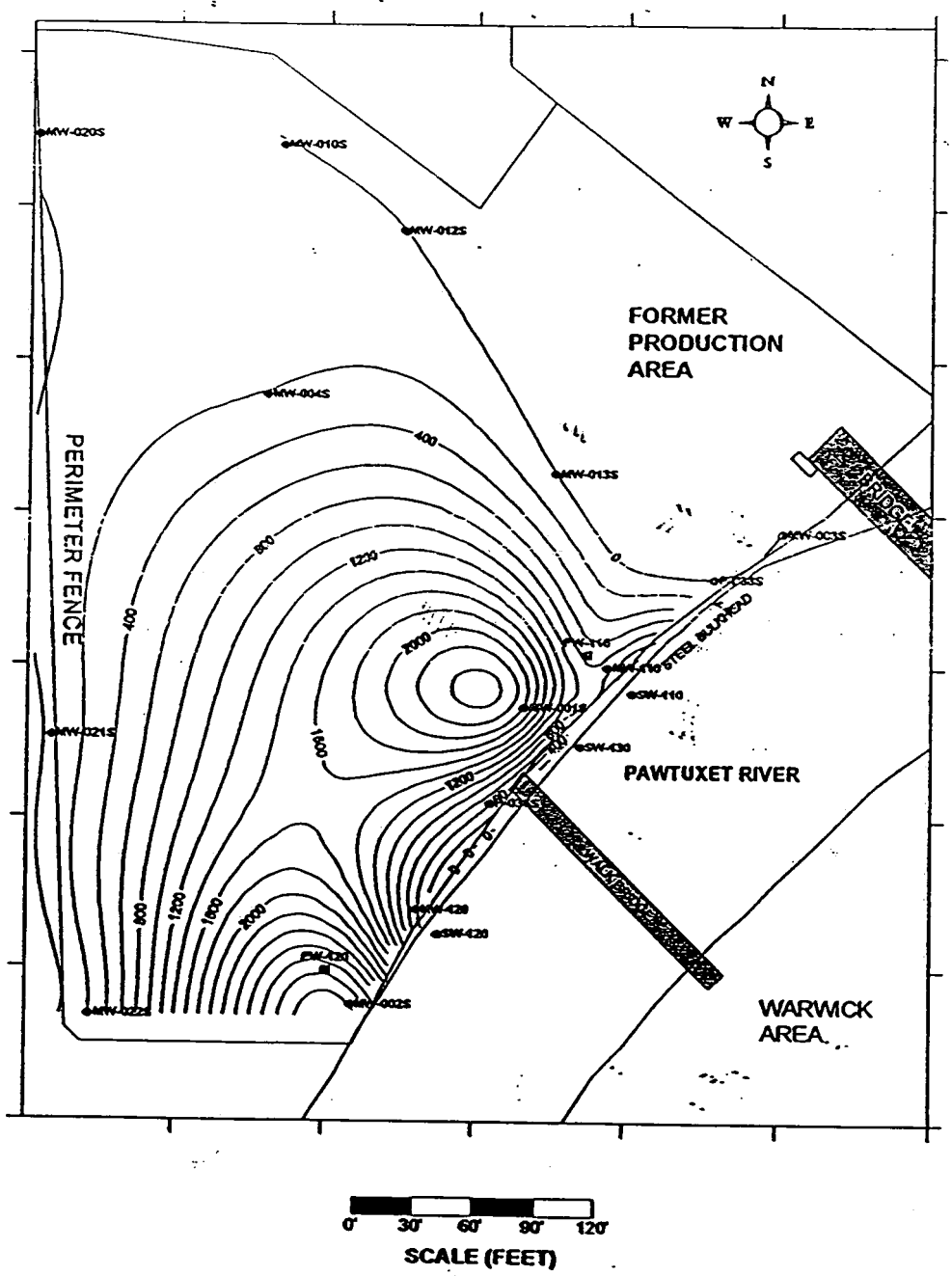

**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 2

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**March 5&6, 1996 Sampling**

**CHLOROBENZENE (ppb)**



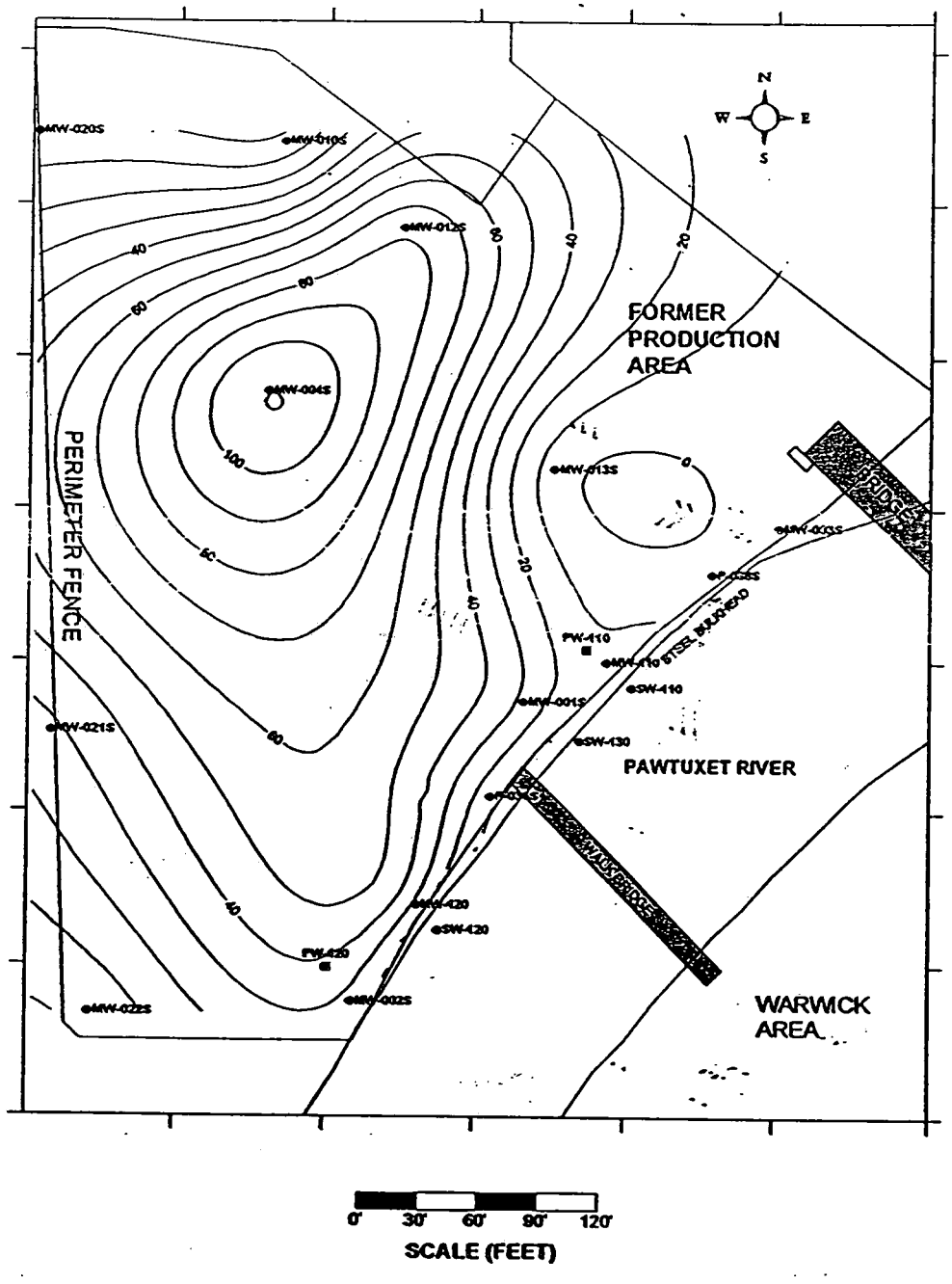

**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 3

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**March 5&6, 1996 Sampling**

**ETHYLBENZENE (ppb)**



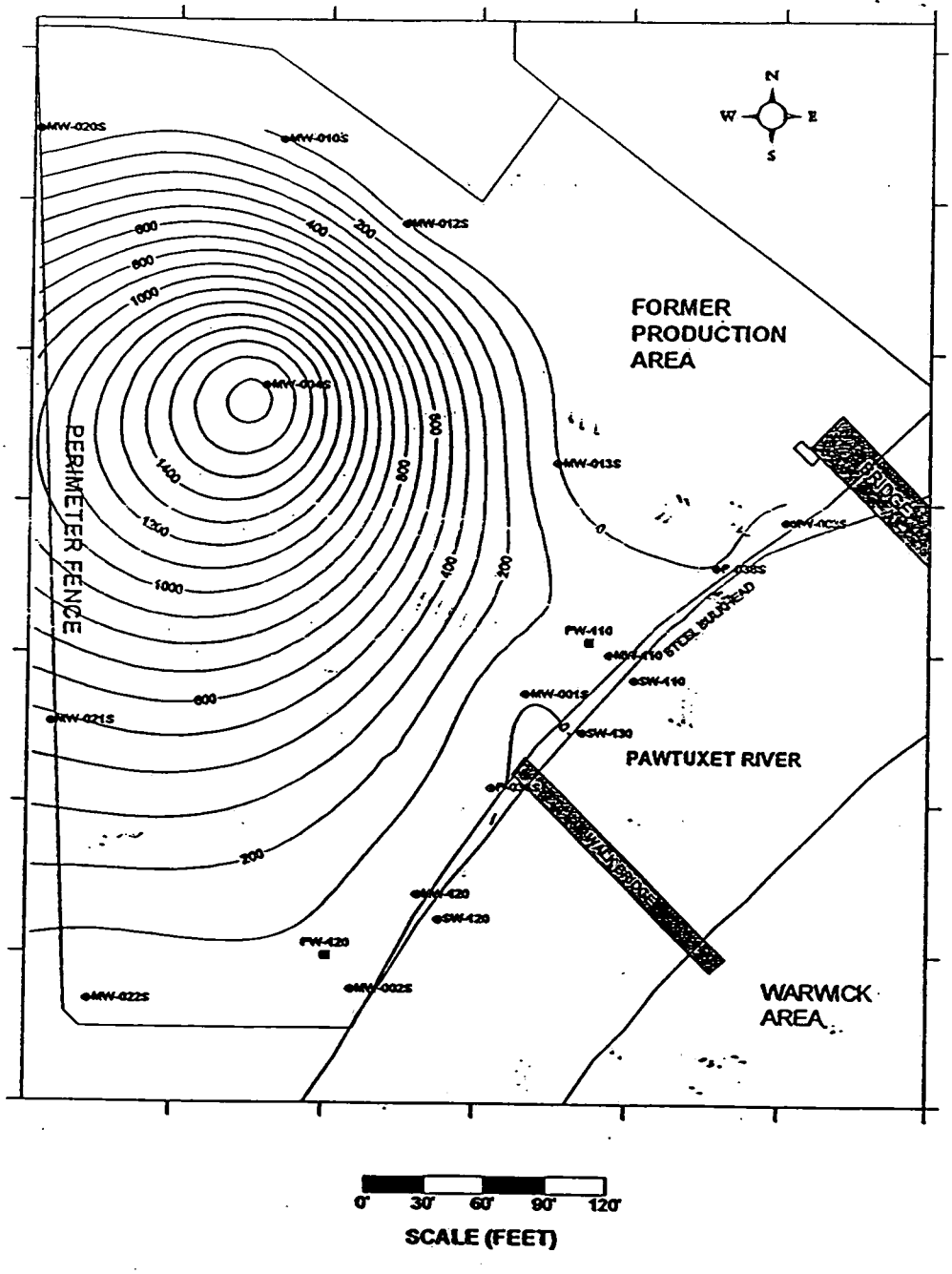

**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 4

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**March 5&6, 1996 Sampling**

**O-CHLOROTOLUE (ppb)**



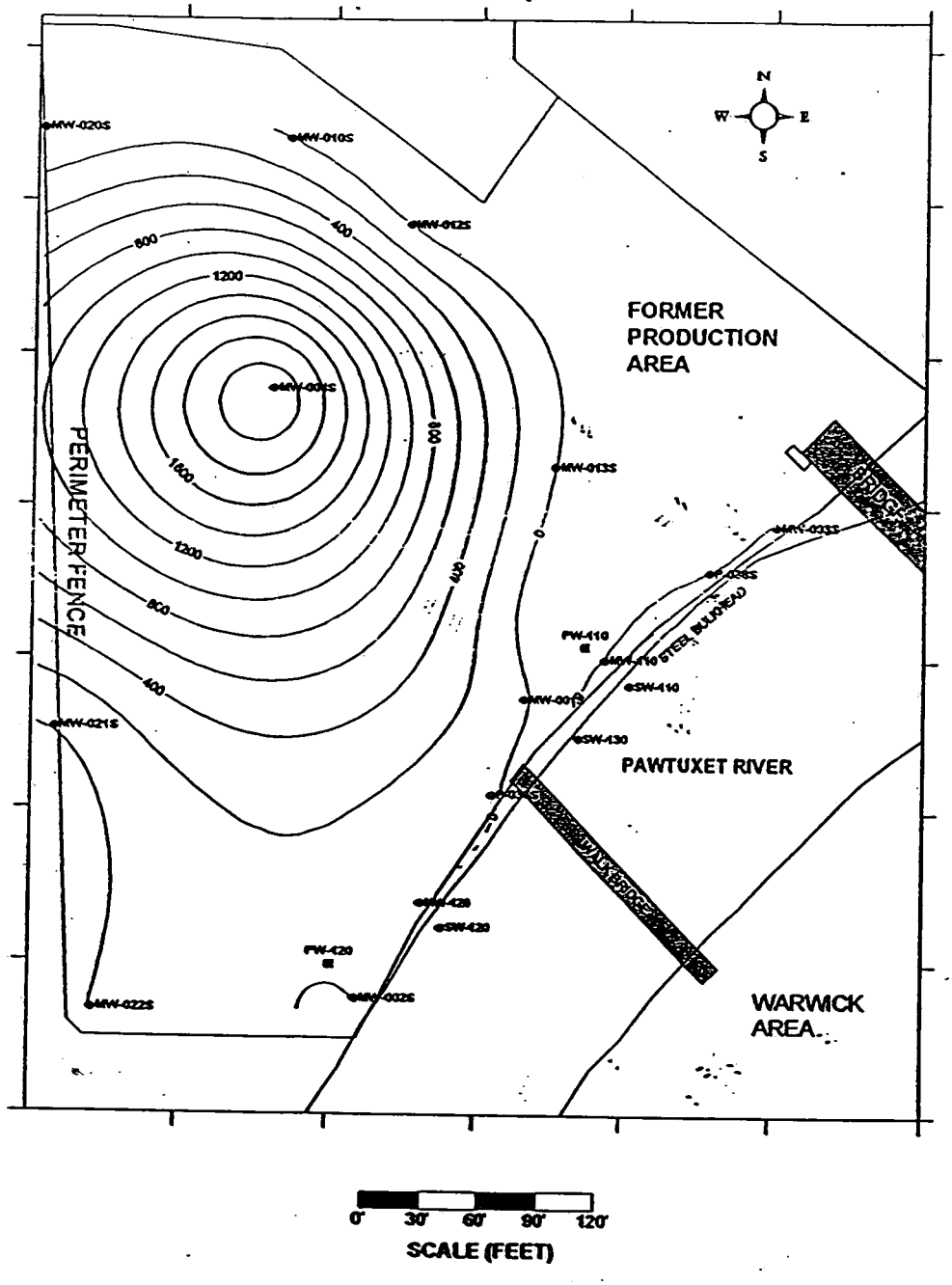

**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 5

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**March 5&6, 1996 Sampling**

**TOLUENE (ppb)**



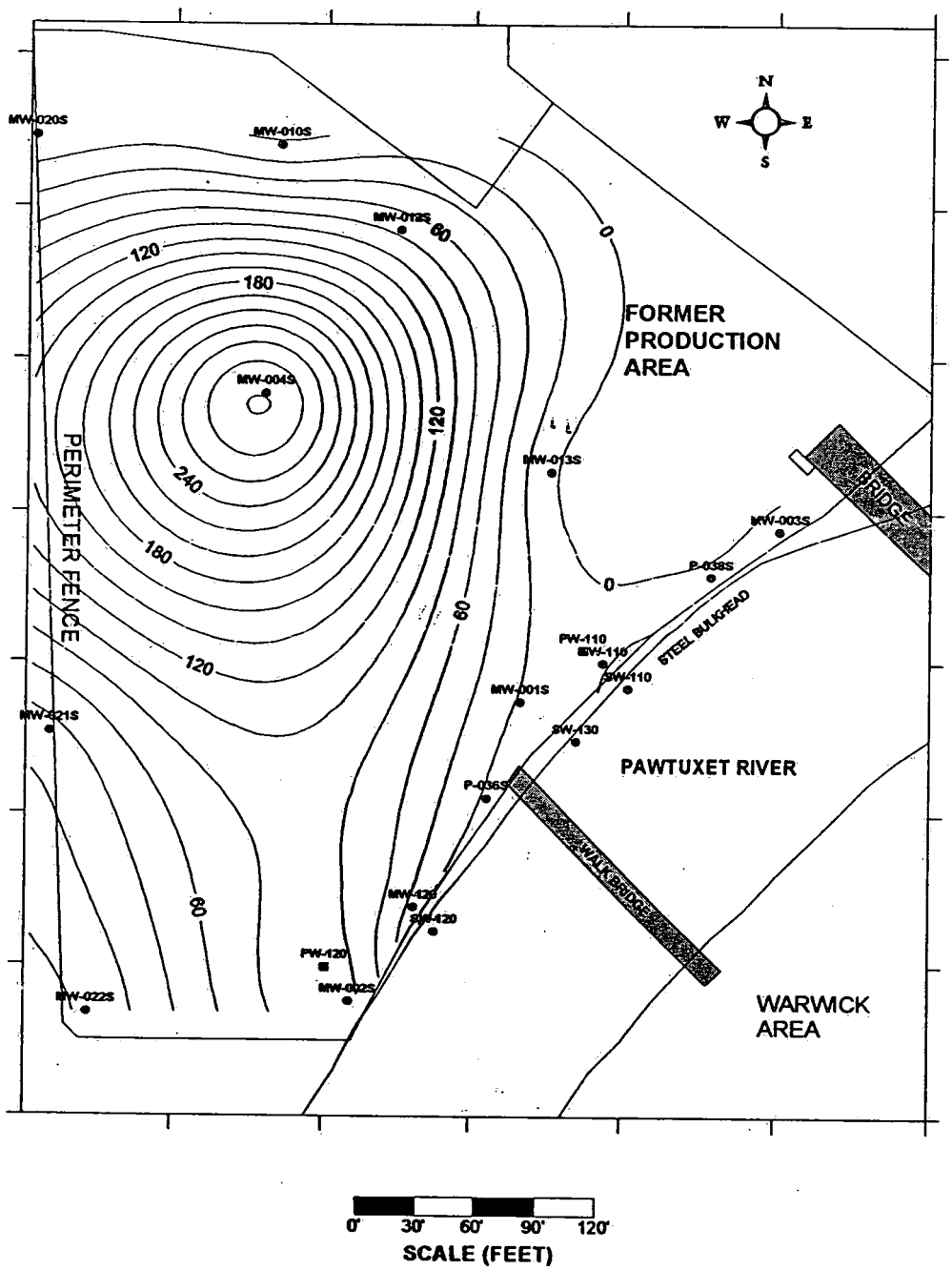

**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 6

**CIBA-GEIGY CORPORATION**
**CRANSTON, RI FACILITY**
**March 5&6, 1996**

**TOTAL XYLENES (ppb)**




**Legend**

- ● Monitoring Well
- ■ Production Well

Figure 7

ATTACHMENT 2

# DRAFT OUTLINE

## PAWTUXET RIVER CMS REPORT

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## ES EXECUTIVE SUMMARY

## 1.0 INTRODUCTION

### 1.1 OVERVIEW

### 1.2 REPORT ORGANIZATION

### 1.3 PROJECT BACKGROUND
1.3.1 SITE HISTORY
1.3.2 PROJECT HISTORY
1.3.3 INTERIM REMEDIAL MEASURES
1.3.4 SWMUs, AOCs, AND AAOIs

### 1.4 PHYSICAL CHARACTERIZATION
1.4.1 GEOLOGIC SITE MODEL
1.4.2 HYDROGEOLOGIC MODEL
1.4.3 HYDROLOGIC MODEL

### 1.5 SOURCE CHARACTERIZATION
1.5.1 PRODUCTION AREA
1.5.2 WASTE WATER TREATMENT AREA
1.5.3 WARWICK AREA
1.5.4 SUMMARY OF POTENTIAL SOURCES TO THE PAWTUXET RIVER

### 1.6 RELEASE CHARACTERIZATION
1.6.1 PRODUCTION AREA GROUNDWATER RESULTS
1.6.2 PAWTUXET RIVER SURFACE WATER RESULTS
1.6.3 PAWTUXET RIVER SEDIMENT RESULTS

### 1.7 OBJECTIVES OF CMS

### 1.8 SUMMARY

## 2.0 STABILIZATION:GROUNDWATER CAPTURE

### 2.1 OVERVIEW
2.1.1 HISTORY AND PHASES ON THE STABILIZATION INVESTIGATION
2.1.2 OBJECTIVES OF STABILIZATION
2.1.3 GROUNDWATER CAPTURE SYSTEM
2.1.4 GROUNDWATER PRETREATMENT
2.1.5 SVE SYSTEM

### 2.2 CURRENT STATUS
2.2.1 GROUNDWATER SAMPLING RESULTS